99C-136

COVER SHEET

Proposal Title:	Clear Lake Wetlands Restoration
Applicant Name:	Lake County Sanitation District (Attn: Mark Dellinger)
Mailing Address:	230A Main Street, Lakeport, CA 95453
Telephone:	707/263-2273
Fax:	707/263-3838
Email:	mark_d@co.lake.ca.us

Amount of funding requested: $1,000,000 for 1 year

Indicate the application topic: Watershed Stewardship

Does the proposal address a specified Focused Action:

Not applicable to Watershed Stewardship

What county or counties is the project located in:

Lake

Indicate the geographic area of your proposal:

Sacramento Tributary: Clear Lake/Cache Creek

Indicate the primary species which the proposal addresses:

Steelhead trout
Valley elderberry longhorn beatle
California red-legged frog
Western pond turtle
Migratory waterfowl
Upland game

ERP strategic objectives that the project addresses:

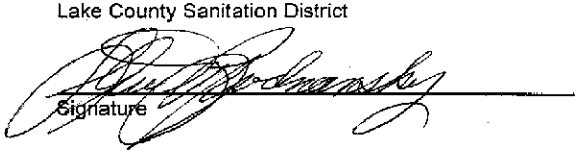
- Restore and increase the area of wetland habitat as an integral ecosystem component.
- Rehabilitate natural processes to support aquatic and terrestrial biotic communities.
- Maintain and enhance populations of selected species.
- Protect and restore functional habitats.
- Improve and maintain water quality.
- Facilitate and improve collaboration among watershed groups.
- Develop watershed monitoring and assessment protocols.

Indicate the type of applicant:	Local government/district
Indicate the type of project:	Implementation

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Steve Brodnansky, Administrator
Lake County Sanitation District



Signature

1. TITLE PAGE

Project Title

Clear Lake Wetlands Restoration.

Primary Contact

Mark Dellinger, Resources Manager, Lake County Sanitation District, 230A Main Street, Lakeport, CA 95453, phone 707/263-2273, fax 707/263-3838, mark_d@co.lake.ca.us.

Participants and Collaborators

- Lake County Resource Management Coordinating Committee (31 Clear Lake watershed organizations, see Attachment A).
- U.S. Environmental Protection Agency (co-funder).
- U.S. Army Corps of Engineers (co-funder).

Organization Type and Tax Status

The applicant is a non-taxable special service district of Lake County.

FEIN

95-6000825.

2. EXECUTIVE SUMMARY

Project Title And Applicant Name

Title: Clear Lake Wetlands Restoration Applicant: Lake County Sanitation District (LACOSAN)

Project Description And Primary Objectives

LACOSAN proposes that CALFED join Basin 2000, an ongoing multi-agency initiative to restore the ecosystem of one of northern California's most significant watersheds: the Clear Lake basin. LACOSAN proposes a $1 million CALFED cost share as a 3% participation in the $36 million second phase of Basin 2000. The second phase of Basin 2000 includes construction of 266 acres of wetlands using recycled wastewater effluent at 16 sites surrounding Clear Lake, and installation of effluent delivery facilities for an ultimate goal of 1,000 acres of restored wetlands. The proposed $1 million CALFED cost share will be applied to construction of the wetlands and associated facilities. The project is located in the Cache Creek ecological unit of the Yolo Basin ecological zone.

Primary Objectives

The project's objectives include: 1) rehabilitate natural processes to support aquatic and terrestrial biotic communities; 2) maintain and enhance populations of selected species; 3) protect and restore functional habitats; 4) improve and maintain water quality; 5) facilitate and improve collaboration among watershed groups; 6) develop watershed monitoring and assessment protocols; and 7) restore and increase the area of wetland habitat as an integral ecosystem component.

Approach/Tasks/Schedule

LACOSAN is one of several agencies implementing Clear Lake watershed plans and policies that rank wetlands restoration as one of the top priority measures for improving wildlife habitat and Clear Lake water quality generally. LACOSAN's portion of the watershed initiative is a 20-year master plan for establishing 1,000 or more acres of wetlands using recycled wastewater effluent at multiple locations selected for their ecological effectiveness around Clear Lake. The project's major tasks and schedule are shown in Table A.

Justification

Clear Lake, California's largest freshwater lake completely within the state border, has lost approximately 85% of its surrounding wetlands to urbanization and agricultural development. These wetland losses have contributed to serious reductions in migratory bird habitat, as well as degradation of water quality generally in Clear Lake and its out-flow to the Sacramento River via Cache Creek. The proposed wetlands restoration is an important early phase in a long-term watershed initiative to improve the basin's ecosystem. It is distinguished by a partnership of agencies assembled by Lake County to collaboratively implement corrective actions.

Cost

This phase of Basin 2000 is budgeted at $36 million, including the first increment of 266 acres of wetlands and associated effluent delivery facilities for a long-range total of 1,000 acres of wetlands. These costs and funding sources are itemized in Table B.

Third Party Impacts

The project's third party impacts include: 1) improved bird watching and hunting for recreationists in the region; 2) improved water quality for 36 public drinking water systems that draw supplies from Clear Lake; and 3) improved water quality generally for recreationists using Clear Lake and Cache Creek.

Applicant Qualifications

The Lake County Sanitation District (LACOSAN) is a special service district operated by Lake County that provides wastewater services countywide. The District is governed by a board of directors, who are also the County's Board of Supervisors. LACOSAN operates two regional and two local wastewater systems with a workforce of 40 employees. The agency has over 25 years of experience administering state and federal financial assistance for capital improvement projects of the type proposed herein. It has just led eleven other local, state, and federal partners in the successful construction and start-up of Basin 2000's $45 million Phase 1 system that recycles wastewater effluent for upland habitat restoration and geothermal power generation.

Monitoring and Data Evaluation

Extensive monitoring of the Clear Lake watershed is a historical and ongoing effort of Lake County and cooperating state and federal resource organizations. The University of California (Davis) maintains a permanent monitoring and evaluation operation in the County for Clear Lake. This effort will be expanded to encompass the proposed wetlands and their effect on the watershed's ecosystem. LACOSAN believes emphasis must be placed on thorough monitoring of the initiative's first increment of 266 acres of wetlands in order to ultimately accomplish the goal of at least 1,000 acres of restored wetlands.

Local Support/Coordination

A hallmark of Lake County's watershed projects is interagency cooperation. The proposed project has been coordinated with and endorsed by the local watershed planning organization (County Resource Management Coordinating Committee as listed in Attachment A), and is being implemented through a partnership of local, state, and federal agencies. This is the same approach the County used to successfully implement the 1990-97 first phase of Basin 2000.

Table A

PROJECT TASKS & SCHEDULE

Task		Schedule
A.	Planning/project management	Ongoing
B.	Environmental review	
	2.1 CEQA EIR	Completed 1997
	2.2 NEPA EA	Completion 6-99
	2.3 Baseline monitoring	Ongoing
C.	Engineering	
	3.1 Reconnaissance	Completed 1997
	3.2 Preliminary	Completed 1998
	3.3 Final	Completion 1999
	3.4 Construction Services	1999-2000
D.	Construction	
	4.1 FCF	1999-2000
	4.2 Pipeline	1999-2000
	4.3 Wetlands	1999-2000
E.	Operation	
	5.1 Start-up/testing	2001
	5.2 Monitoring	Ongoing upon start-up

Table B
COSTS & FUNDING SOURCES

BUDGET		PARTNERS		
Component	**$ Million**	**Sources**	**$ Million**	**% of Total**
Wastewater system upgrades	7.6	Lake County	7.6	21
Wetlands flow control facility	9.9	U.S. EPA	6.0	16
Wetlands interconnection pipeline	14.6	Corps of Engineers	5.0	14
Wetlands construction	4.0	S.E. Geysers operators	5.0	14
	36.1	California Wildlife Conservation Board	3.4	9
		State Water Resources Control Board	3.0	8
		U.S. DOE	2.6	8
		California Energy Commission	2.5	7
		CALFED	1.0	3
		Total	36.1	100

3. PROJECT DESCRIPTION

Project Description And Components

The project is the second phase of a multi-phase, multi-year initiative to restore the ecosystem of the Clear Lake basin. The project proposed herein is a component of the larger initiative and includes construction of 266 acres of wetlands located at 16 sites around Clear Lake, and installation of delivery facilities for ultimate expansion up to 1,000 acres of wetlands. Water for supplying the wetlands will be provided from recycled wastewater effluent. The source of wastewater effluent is LACOSAN's Northwest Regional Wastewater Treatment Plant located at Lakeport. The proposed wetlands system includes effluent control storage at the treatment plant and a pipeline to convey effluent to the multiple wetland sites. The wetlands, flow control facility, and pipeline components are described further as follows:

- *Wetlands*. This component includes creation of 16 wetland sites totaling 266 acres. The wetlands will be constructed by creating levees in existing dry channels, and grading and shaping to create inter-mixed areas of deep water and shallow marsh habitat. A mix of open water/emergent marsh will be established to provide preferred habitat for a broad variety of wetland-dependent birds and mammals. Treated effluent will be stored and conveyed to the wetlands via the FCF and pipeline, respectively, and introduced to the wetland cells through buried pipes into deepwater and inlet zones. During effluent application periods (primarily the summer months) these wetlands will be hydraulically loaded at rates that are balanced by the on-site losses of water through evaporation and transpiration by wetland vegetation. There will be no surface releases of treated effluent, consistent with the requirements of the Regional Water Quality Control Board. During wet periods, effluent application will cease and stormwater flows will be allowed to accumulate in the wetland cells, providing flood detention and water quality improvement prior to release to downstream waters. LACOSAN already owns approximately half of the sites; the remaining sites will be acquired from willing property owners. No condemnation of property will be used in the project.

- *Wetlands Flow Control Facility (FCF)*. The FCF is required to store effluent during the winter periods when high effluent flows are experienced, and effluent use by the wetlands is not always possible. The FCF will have a capacity of approximately 2,300 acre-feet. Current storage at LACOSAN's Northwest Treatment Plant is insufficient to achieve this storage during wet winters. The FCF will also provide continuous summer flows to the wetlands, when water use demands are highest and effluent flows will need to be managed to sustain plant and aquatic life.

- *Wetlands Interconnection Pipeline*. This component includes a pipeline and two pump stations required for supplying wastewater effluent from the FCF to the multiple wetland sites. The pipeline will also receive operational transfers from one wetland for reuse at another wetland site further along the pipeline. The pipeline will be 16 inches in diameter, and will begin at a pump station located at the FCF at LACOSAN's Northwest Treatment Plant. From there it will extend approximately 19 miles along the north shore of Clear Lake to an intermediate booster pump station located near the Clearlake Oaks effluent disposal ponds. From that booster pump station, the pipeline will extend south and east approximately two miles and terminate at LACOSAN's Southeast Treatment Plant. Pipe

materials will include both ductile iron and PVC. It will be installed at depths appropriate for the adjacent buried utilities and traffic conditions (typically 3 to 4 feet of cover). The pump stations will consist of multiple vertical turbine or horizontal split-case pumps with automatic controls to stop the flow in the event of an emergency. Pump controls and electrical equipment will be located in a building to protect them from the elements and reduce noise impacts. Depending upon final design, surge tanks or other surge facilities will be located adjacent to the pump stations. Pump operating conditions and control data will be transmitted to LACOSAN's computer system for monitoring and automatic/operator control.

Work Scope

The work scope, schedule, and deliverables for the project are given in Table 1.

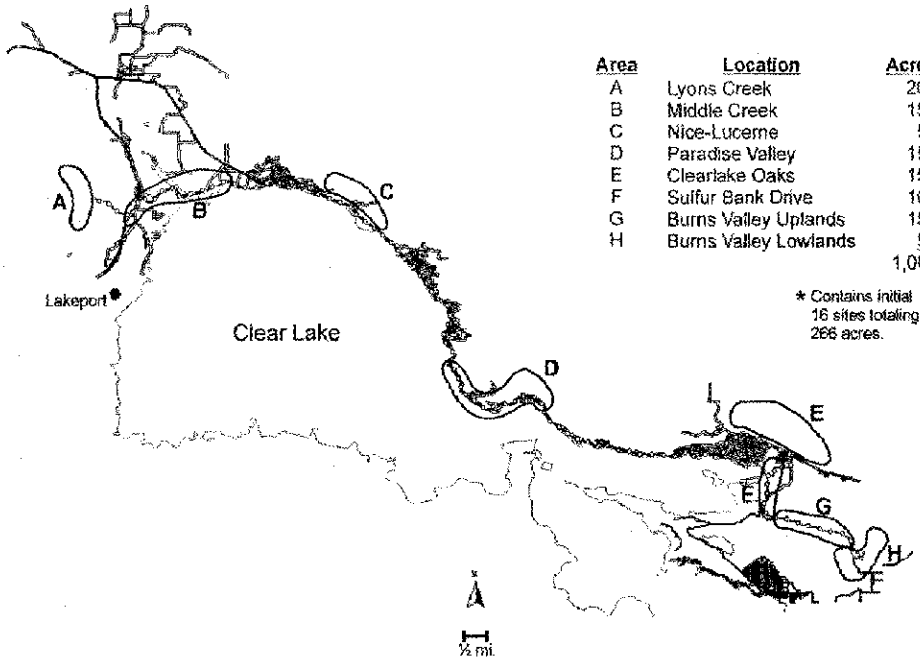
Project Location

The project location is shown in relation to Clear Lake in Figure 1. The entire project is located within Lake County and the Clear Lake watershed (defined by CALFED as the Cache Creek ecological unit of the Yolo Basin ecological zone).

Table 1
PROJECT WORK SCOPE

Task	Work to be Completed	Schedule		Deliverable
		Start	Complete	
1. Planning/project management	20-year master plan; team coordination; permitting.	Mar 1997	Dec 2000	Master plan; budget and schedule updates; progress reports.
2. Environmental review				
2.1 CEQA	EIR	Jan 1997	Nov 1997	EIR
2.2 NEPA	EA	Jan 1998	May 1999	EA
2.3 Baseline monitoring	Background biological/ecological conditions.	1970	Ongoing	Multiple evaluation reports.
3. Engineering				
3.1 Reconnaissance	Conceptual engineering.	Apr 1997	Dec 1997	Design concepts and cost estimates.
3.2 Preliminary	Site evaluation/mapping/preliminary facility design.	Mar 1998	Aug 1998	Project maps/drawings/preliminary design report.
3.3 Final	Final plans and specifications/construction documents.	Nov 1998	May 1999	Construction plans and specifications/bidding documents.
3.4 Construction services	Construction supervision/testing/design modification.	Jun 1999	Dec 2000	As-built drawings, test/acceptance reports.
4. Construction				
4.1 FCF	FCF construction.	Apr 2000	Nov 2000	Constructed facility.
4.2 Pipeline	Pipeline construction.	Apr 2000	Dec 2000	Constructed facility.
4.3 Wetlands	Wetlands construction	Jun 1999	Dec 2000	Constructed facilities.
4.4 Wastewater system	Upgrades	Apr 1999	Dec 2000	Constructed facilities
5. Operation				
5.1 Start-up/testing	System testing/acceptance.	Nov 1999	Dec 2000	O&M manuals, testing/acceptance reports.
5.2 Monitoring	Biological/ecological monitoring	2001	Ongoing	Periodic monitoring reports.

Figure 1
CLEAR LAKE WETLANDS RESTORATION PLAN



Area	Location	Acres
A	Lyons Creek	200 *
B	Middle Creek	150
C	Nice-Lucerne	50 *
D	Paradise Valley	150 *
E	Clearlake Oaks	150 *
F	Sulfur Bank Drive	100 *
G	Burns Valley Uplands	150 *
H	Burns Valley Lowlands	50 *
		1,000

* Contains initial 16 sites totaling 266 acres.

635/800

4. ECOLOGICAL/BIOLOGICAL BENEFITS

Objectives

Consistent with the Visions, Restoration Targets and Programmatic Actions of CALFED for the Yolo Basin Ecological Management Zone, Lake County Sanitation District (LACOSAN) has initiated a series of actions to maintain and enhance the ecosystem of the Clear Lake Basin of Lake County. These actions, known collectively as the Clear Lake Basin 2000 Clean Water Initiative, comprise a coordinated set of watershed improvement objectives in five key action areas: aquatic vegetation control; contaminant and nutrient control; wetlands restoration; erosion control; and land-use planning and management. The Clear Lake Basin 2000 Project is a long-range program for watershed enhancement and environmental protection within the Clear Lake Basin. A key element of the project is LACOSAN's 20 year goal to create or restore 1,000 acres of wetlands within the Clear Lake Basin. The first components of the project to be implemented include construction of a interconnection pipeline between the Northwest Regional Wastewater Treatment Plant (RWTP) and the Southeast Regional Wastewater Treatment Plant, and supply treated effluent to 16 proposed constructed wetlands collectively totaling 265 acres. Public education facilities about the ecological and watershed values of wetlands will be developed.

Clear Lake is the principal water body of Lake County and the largest fresh water natural lake located wholly within the State of California. The lake's drainage area is 2,682 square miles of mostly mountainous terrain of the Coast Range. The lake is entirely fed by natural runoff and groundwater, covers approximately 68.6 square miles and is relatively shallow, with a maximum depth of 60 feet and an average depth of 26 feet. The lake's single outlet discharges into Cache Creek, which drains easterly to the Sacramento Valley and the Yolo Bypass. Clear Lake is within CALFED's Yolo Basin Ecological Management Zone. Clear Lake serves as a natural storage feature for waters released to the Delta.

The lake serves as a water supply source for both Lake County and Yolo County. The lake presents multiple beneficial uses including a substantial recreational fishery. Flows in Cache Creek from the lake are used for water supply that sustain an important agricultural economy in Yolo County and the river supports fisheries, white-water rafting, boating in the lower reaches of the Creek, and other recreational uses. Wildlife habitat comprises a large area of the Clear Lake and Cache Creek watersheds, and the lake and river system are vital elements in sustaining the ecological diversity and wildlife habitats of the region as they present one of the few perennial sources of water and riparian habitat in the lee side of the Coast Range.

Water Quality/Water Supply/Flood Control Benefits

The Basin 2000 Project will advance CALFED program goals for water quality, specifically Target 1: Restore and maintain water quality in the Cache Creek Watershed. Clear Lake has significant water quality problems; some are the result of natural conditions. Because the lake is shallow and warms in the hot summer period, uncontrolled algae growth occurs in August and September. Small inflow of tributary streams in summer adds to diminished oxygen supply and few sources of cooling waters to mix with the warming lake water. Algae growth is exacerbated by nutrient and contaminant loads from adjacent communities, natural sources, urban and agricultural runoff from the watershed, and wastewater discharges into the lake. The effects of eutrophication are apparent in parts of the lake. The blooms reduce water clarity, decrease dissolved oxygen levels to where aquatic organisms are harmed, increase biological oxygen demand, and physically hinder swimming, fishing and boating. Agriculture and land development in the watershed has led to increased discharge of sediment that increases turbidity, adds nutrients, and warms the lake water. Mercury, once mined extensively in the watershed, finds its way via water courses to the lake. CALFED's Programmatic Action 1A is specifically directed to control of mercury, which is recognized as a problem contaminant in the Delta. These water quality problems affect Cache Creek and the Delta.

Protection of Clear Lake water quality is a priority goal of the County, the Regional Water Quality Control Board, Department of Fish and Game and other agencies. LACOSAN's improvement of wastewater treatment facilities, as well as inflow/infiltration reduction program are corrective actions directed to reducing nutrient and contaminant sources going into the lake. The Basin 2000 wetlands will provide the dual benefits of water recycling for watershed restoration and water quality improvement. The constructed wetlands are expected to improve the water quality of runoff to Clear Lake in two ways. (1) The wetlands will trap sediment, contaminants and nutrients generated within their local catchments. Wetlands have demonstrated efficiency in taking up nutrients and retarding the discharge of sediment and nutrient loads as well as contaminants like mercury, metals and oil. Thus, the project wetlands will contribute directly to improved water quality within each catchment water course that discharges into Clear Lake, in effect, cutting off completely or substantially reducing nutrient, contaminant and sediment loads that currently end up in the lake. (2) The project will integrate regional water re-use capabilities by providing a use for effluent flows generated by the Northwest Regional Wastewater Treatment Plant. The project will resolve collection and treatment capacity deficiencies that resulted in contamination of the lake (and assist in the removal a Cease and Desist Order from the Regional Water Quality Control Board prohibiting discharge to Clear Lake).

The actions of the Basin 2000 project will contribute to the cumulative efforts needed to restore Clear Lake to the water quality that existed earlier in the century and will benefit downstream water supply and water quality of Cache Creek. While Clear Lake is not a source of significant contamination at present, the preservation of that good quality water supply is important to the ecological health of Cache Creek and the Delta. Every improvement in water quality in Clear Lake, including dissolved oxygen levels, reduced nutrients, metals and contaminants, is passed through to Cache Creek and eventually the Delta. This, in turn, strengthens the health of the aquatic habitats of an entire river system from the Delta to the headwaters of tributaries to Clear Lake. Improved water quality adds to the beneficial uses of the waters of Cache Creek and the Delta for water supply, recreation, fisheries, and others.

The project also will expand the beneficial use of effluent (after being collected from the wetlands) by injection into deep geothermal wells at the Southeast Geysers, which are used to generate power. Use of the effluent in this manner reduces the need to withdraw raw lake water from Clear Lake for diversion to The Geysers, allowing the water to remain in the lake and be discharged into Cache Creek for other beneficial uses. That benefit is consistent with CALFED's Target 1 for Ecological Processes, Central Valley Stream Flow.

Cache Creek is a riparian corridor of immense significance by virtue of its location in the arid lee side of the Coast Range and the fact that perennial flow can be sustained in most years because of the storage which Clear Lake affords. The created wetlands will restore hydrologic buffers to retard runoff into the lake, releasing it more slowly after peak flows have passed than occurs at present. The benefit is reduced flood hazard and erosion at the lakeshore, along Cache Creek and ultimately in the Delta. This effect is consistent with CALFED's Natural Floodplain and Flood Processes Programmatic Action 3A and Target 4.

Biological/Ecological Benefits

Since the turn of the century, the Clear Lake Basin has lost approximately 84% of its wetlands. This loss has seriously directly impacted aquatic ecosystems and wildlife habitat, while indirectly diminishing the watershed's general ecological health through poorer water quality. The restoration of wetlands will resulted in improved nutrient cycling and buffering that contribute to better water quality. Wetland restoration will restore important wildlife breeding grounds and fish spawning habitat. Wetlands restoration is recognized as a critically-needed action to restoring the hydrologic balance and ecological health within the watershed (CALFED Programmatic Action 4A, Natural Floodplain and Flood Processes, and Visions for Plant Species and Communities, and Riparian and Riverine Aquatic Habitat Programmatic Actions 1A-1D.). In the initial phase of the project, 265 acres of wetlands at 16 sites will be created in areas where former wetlands have either entirely disappeared or have been substantially damaged and diminished in habitat value. The 16 sites were selected after an extensive evaluation and screening process that considered the size of the potentially created/enhanced wetland, degree of disturbance, potential for presence of rare plants and rare, threatened or endangered wildlife, habitat interspersion, as well as hydrologic conditions and considerations of land-use and potential for public education.

When constructed and implemented, the restored/enhanced wetlands sites will provide substantial benefits which do not exist at present. The wetlands will be perennial features with emergent vegetation, as opposed to seasonal wetlands. As a result, each wetland will provide a sustainable resource for the associated plant communities and wildlife habitat. The wetlands will add to the diversity of habitats in the watershed. Most of the watershed is comprised of non-native grasslands, savanna, chaparral and oak woodland. Non-native grasslands are the most widespread vegetation type within the Clear Lake Basin and have the lowest relative habitat value. The presence of year-round wetlands amid these upland habitats will re-establish a diversity of habitats that has not existed for most of one hundred years in the watershed.

Wildlife Habitat Benefits

A comparison of the wildlife potentially occurring at the proposed wetland sites before and after the conversion to emergent wetlands indicates the addition of 105 species distributed between the wetland and riparian habitats that would be created. These are primarily birds found in aquatic and riparian woodland habitats. The list includes grebes, egrets, herons, several ducks, belted kingfisher, several woodpeckers, flycatchers and jays. Additional mammals could be expected to include gray squirrels and dusky-footed woodrats. The wetlands of Anderson Marsh on the southern edge of Clear Lake constitute the largest fish and wildlife production area in the basin. According to the U.S. Fish and Wildlife Service, field studies have revealed the presence of 91 species of birds in the marsh, of which 57 species nest there.. The more complex habitat created as a result of the project should have a much higher carrying capacity for the remaining, and added, species that result from the transition. The project wetlands would contribute to the habitat of these species and extend their geographic distribution to the north side of the lake. The conversion would result in a net benefit to wildlife through increased species diversity, habitat richness and capacity, and ecological complexity.

The project would result in habitat creation for some special status species and would substantially increase the carrying capacity of these sites for northwestern pond turtles (*Clemmey marmorata marmorata*), a species of concern, as well as a broad variety of sensitive species of amphibians, reptiles, mammals, avifauna and insects which would be expected

use the wetlands as preferred habitat. Clear Lake is an important breeding area for these species, which are recovering from a decline induced by human disturbance, habitat destruction, low water and pesticide. In addition, Cache Creek serves as a watering area for wildlife and is of special importance during dry periods. Big game species include tule elk, black-tailed deer and black bear. Created wetlands at Clear Lake will contribute to sustained flow into the lake, and as a result, a more regular sustained flow into Cache Creek.

The Basin 2000 Project benefits to fish in Clear Lake and Cache Creek will result from the expected improvements in water quality from the project. Clear Lake's fishery is recognized as a warmwater fishery of statewide importance. Surveys have established the presence of 29 species of native and introduced species. The predominant species now found in Cache Creek are members of the minnow family such as Sacramento pike minnow, carp and roach, channel catfish, white catfish, and largemouth bass. Salmon and steelhead have not been documented in Cache Creek for years. Cache Creek is identified as Essential Fish Habitat. The cumulative contribution of the project to improved water quality, coupled with better sustained flows, would contribute to the ecological health of the creek, and therefore may be expected to result in a strengthening of life cycle conditions and habitat of native fish species. This benefit is consistent with the visions for riparian and riverine habitats and freshwater fish habitat in the Yolo Basin Ecological Management Zone.

The creation of wetlands in the Clear Lake Basin adds to the diversity of habitat in a region where few such resources remain. The wetland habitat created by the Basin 2000 Project will contribute incrementally to the formation of a corridor of riverine and wetland habitat that stretches from the Delta to Clear Lake. The proposed wetlands at Clear Lake support the CALFED vision for restoring continuous corridors of wildlife habitat along waterways from the upper watersheds to the Delta that will support diverse native species assemblages and ultimately lead to the recovery of threatened and endangered fish and plant species throughout the Central Valley.

The value of the project was recently confirmed by the U.S. Fish and Wildlife Service in a February 1999 habitat evaluation procedure (HEP) report that concluded the project will yield a significant positive net gain in average annual habitat units benefitting a wide variety of species. According to the Fish and Wildlife Service:

> *LACOSAN's long range plan, would be a significant step to restoring these unique habitats. Wetlands provide vital habitat for a vast array of fish and wildlife species. These habitats are important to resident and migratory waterfowl, shorebirds, and other water-associated birds, passerine birds, upland game birds, raptors, black-tailed deer, and small and large mammals in the project area. Each of these species is important for their consumptive or non-consumptive value to the public. The construction of the proposed wetland creation would increase the diversity and number of wildlife species that utilize this area.*

The value of the project was also recently confirmed by the U.S. Corps of Engineers in a June 1998 watershed restoration analysis (Section 905b reconnaissance report). The Corps of Engineers concluded that the proposed wetlands system will *"provide substantial benefits for the Clear Lake watershed, specifically for the following purposes: a) management and restoration of water quality; b) control and remediation of sediment inflow to Clear Lake; c) restoration of degraded wetlands; and d) restoration of habitat for California native species."*

Linkages

Phase 2 of Basin 2000 is related to past and future work as follows:

- *Phase 1.* The first phase of Basin 2000 was constructed during 1995-97 and is now operational. It is a $45 million collaborative effort by 11 local, state, and federal agencies and corporate partners to restore upland game habitat and recycle wastewater effluent for renewable energy purposes. Several of the Phase 1 partners are also participating in Phase 2.
- *Future Phases.* Lake County's watershed restoration master plan envisions approximately 1,000 acres of wetlands ultimately being restored around Clear Lake. Additionally, other members of the watershed coordination committee (see Attachment A) will be implementing complimentary projects for native species, recovery and conservation, and rehabilitation and protection of natural processes in the watershed.

Compatibility With Non-Ecosystems Objectives

The project does not conflict with other CALFED objectives, including water quality, water supply reliability, and levee system integrity; nor other CALFED programs, including water use efficiency, water transfers, and watershed management. In fact, a secondary objective of the project is improving Clear Lake water quality by using the proposed wetlands to reduce sediment and pollutant flows into the lake. Subsequent improvements in water quality are intended to benefit steelhead trout in Cache Creek, which is the only outlet from Clear Lake to the Sacramento River.

5. TECHNICAL FEASIBILITY AND TIMING

The technical feasibility of the project has been assessed in master planning, and biological and engineering studies during 1997-98. Feasibilities were also examined during preparation of the project's CEQA environmental impact report and NEPA environmental assessment. Copies of all biological, engineering, and environmental documents are available upon request.

Other Alternatives Considered

Numerous investigations over several decades have examined a wide variety of strategies and techniques for restoring the ecosystem of Clear Lake. These investigations have consistently concluded that wetlands restoration is one of the strongest possible actions that can be taken to restore the watershed's health. The latest examples are the U.S. Corps of Engineers 1998 watershed restoration analysis and the U.S. Fish and Wildlife Service 1999 habitat evaluation report.

Environmental Reviews

The project has been reviewed for CEQA and NEPA compliance as follows:

1. A CEQA environmental impact report was completed and certified on November 4, 1997.

2. A NEPA environmental assessment was completed in public draft form in March 1999, and is currently scheduled for final certification in May 1999.

Copies of both documents are available upon request.

Permitting

Permitting for the project was initiated in November 1998 and is proceeding according to the requirements listed in Table 2. All permits are expected to be in hand for the initiation of construction currently scheduled for June 1999.

Table 2
PHASE 2 PERMIT REQUIREMENTS

AGENCY	PERMIT
Federal	
Army Corps of Engineers	404 permits (nationwide #12)
State	
Department of Fish and Game	Section 1601 Stream Bed Alteration Agreement.
Regional Water Quality Control Board	Project Review – NPDES Permit Consistency. Section 401 Water Quality Certification. General Construction Activity NPDES Permit (Storm Water Pollution Prevention Plan). General Order for Dewatering (if needed).
Department of Health Services	Water Recycling Permit
Caltrans District 1	Longitudinal Encroachment Permit (pipeline only).
Division of Safety of Dams	Preliminary and Final Design Approval (FCF only).
Division of Occupational Safety	Underground Classification (pipeline only).
Lake County	
Air Quality Management District	Authority to Construct and Permit to Operate.
Department of Environmental Health	Project Review – Potable Facilities (pipeline only).
Department of Public Works	Encroachment Permit (pipeline only).

6. MONITORING

Extensive monitoring of the Clear Lake watershed is a historical and ongoing effort of Lake County and cooperating state and federal resource organizations. The University of California (Davis) maintains a permanent monitoring and evaluation office in the County for Clear Lake monitoring. This effort will be expanded to encompass the proposed wetlands and their effect on the watershed's ecosystem. LACOSAN believes emphasis must be placed on thorough monitoring of the initiative's first increment of 266 acres of wetlands in order to ultimately accomplish the 20-year goal of at least 1,000 acres of restored wetlands.

The project will include a comprehensive monitoring program as itemized in Table 3. The program will be conducted by LACOSAN staff on a continuous basis over the operational life of the facilities. Data will be shared with members of the watershed planning organization (Attachment A), particularly the University of California's Clear Lake research station. LACOSAN foresees no difficulty maintaining and transferring the data to a storage system of CALFED's choice.

Table 3
WETLANDS MONITORING PLAN

Parameters	Sample Locations	Sample Frequency
Temperature, dissolved oxygen, pH, conductivity	Inflow(s) and outflow(s)	Daily
BOD_5, TSS, Cl, SO_4	Inflow(s) and outflow(s)	Monthly
NO_2 + NO_3 - N, NH_4 - N, TKN, TP	Inflow(s) and outflow(s)	Quarterly
Metals, organic, toxicity	Inflow(s) and outflow(s)	Annual
Flow	Inflow(s) and outflow(s)	Weekly
Rainfall	Adjacent to wetland	Daily
Water stage	Within wetland	Daily
Plant cover for dominant species	Near inflow, near wetland center, near outflow	Annually
Wildlife	Species census/diversity	Quarterly

7. LOCAL INVOLVEMENT

The project is an outgrowth of extensive local stakeholder collaboration to restore the Clear Lake ecosystem. The effort is led by the Lake County Resource Management Coordinating Committee, a 31-member group whose membership is listed in Attachment A.

LACOSAN has conducted an ongoing public outreach effort for Basin 2000 since the project started in 1990. This has included information presentations to civic organizations, news releases to media, public briefings of elected and appointed officials, and one-on-one consultations with affected land and facility owners.

8. COST

The overall project budget is summarized in Table 4. The proposed use of CALFED funds is shown in Table 5 by expenditure category and in Table 6 by quarterly schedule.

Table 4

OVERALL BUDGET SUMMARY

Project Components		$ Million				
		Total Cost	CALFED Share	Match Share	Expended To Date	Remaining Unexpended
1. Flow Control Facility						
1.1	Planning & Mgmt.	0.165		0.165	0.080	0.085
1.2	Mapping	0.020		0.020	0.020	0.000
1.3	Environ.	0.080		0.080	0.080	0.000
1.4	Prelim. Eng.	0.064		0.064	0.064	0.000
1.5	Final Eng.	0.310		0.310	0.150	0.160
1.6	Land & ROW	0.100		0.100	0.000	0.100
1.7	Permits/Comp.	0.030		0.030	0.010	0.020
1.8	Construction	5.005		5.005	0.000	5.005
1.9	Const. Eng.	0.440		0.440	0.000	0.440
1.10	Contingencies	1.103		1.103	0.000	1.103
	Subtotal	7.317		7.317	0.404	6.913
2. Pipeline						
2.1	Planning & Mgmt.	0.165		0.165	0.080	0.085
2.2	Mapping	0.020		0.020	0.020	0.000
2.3	Environ.	0.080		0.080	0.080	0.000
2.4	Prelim. Eng.	0.064		0.064	0.064	0.000
2.5	Final Eng.	0.710		0.710	0.025	0.685
2.6	Land & ROW	0.375		0.375	0.000	0.375
2.7	Permits/Comp.	0.030		0.030	0.010	0.020
2.8	Construction	9.002	1.00	8.002	0.000	9.002
2.9	Const. Eng.	0.800		0.800	0.000	0.800
2.10	Contingencies	0.876		0.876	0.000	0.876
	Subtotal	12.122	1.00	11.122	0.279	11.843
3. Pumping Modifications						
3.1	Final Eng.	0.050		0.050	0.010	0.040
3.2	System mod.	4.450		4.450	0.000	4.450
3.3	Contingencies	0.500		0.500	0.000	0.500
	Subtotal	5.000		5.000	0.010	4.990
4. Wetlands						
4.1	Planning & Mgmt.	0.165		0.165	0.080	0.085
4.2	Mapping	0.020		0.020	0.020	0.000
4.3	Environ./Monitoring	0.085		0.085	0.085	0.000
4.4	Prelim. Eng.	0.064		0.064	0.064	0.000
4.5	Final Eng.	0.150		0.150	0.040	0.110
4.6	Land & ROW	0.375		0.375	0.000	0.375
4.7	Permits/Comp.	0.060		0.060	0.010	0.050
4.8	Construction	2.611		2.611	0.000	2.611
4.9	Const. Eng.	0.200		0.200	0.000	0.200
4.10	Contingencies	0.231		0.231	0.000	0.231
	Subtotal	3.961		3.961	0.299	3.662
5. Wastewater System						
5.1	Prelim. Eng. & Mgmt.	0.200		0.200	0.100	0.100
5.2	Final Eng.	0.650		0.650	0.050	0.600
5.3	Permits/Comp.	0.060		0.060	0.010	0.050
5.4	Construction	5.300		5.300	0.000	5.300
5.5	Const. Eng.	0.520		0.520	0.000	0.520
5.3	Contingencies	0.970		0.970	0.000	0.970
	Subtotal	7.700		7.700	0.160	7.540
Total		36.100	1.000	35.100	1.152	34.948

Table 5
CALFED BUDGET

Task	Direct Labor Hours	Direct Salary & Benefits	Service Contracts	Material & Acquisition Costs	Misc. & Other Direct Costs	Overhead & Indirect Costs	Total Cost
Pipeline const.			$1,000,000				$1,000,000

Table 6
CALFED QUARTERLY BUDGET

Task	Quarterly Budget Oct-Dec 99	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sep 00	Total Budget
Pipeline const.	$250,000	$250,000	$250,000	$250,000	$1,000,000

9. COST-SHARING

The project's current plan for cost-sharing is as follows:

Partners	$ Million	% of Total
Lake County	7.6	21
U.S. EPA	6.0	16
Corps of Engineers	5.0	14
S.E. Geysers operators	5.0	14
California Wildlife Conservation Board	3.4	9
State Water Resources Control Board	3.0	8
U.S. DOE	2.6	8
California Energy Commission	2.5	7
CALFED	1.0	3
Total	36.1	100

10. APPLICANT QUALIFICATIONS

The Lake County Sanitation District (LACOSAN) is a special service district operated by Lake County, California that provides wastewater services countywide. The district is governed by a board of directors, who also serve as the County's Board of Supervisors. LACOSAN operates two regional wastewater systems and two local systems, with a workforce of 40 employees. The agency has over 25 years of experience administering state and federal financial assistance for capital improvement projects of the type proposed herein. It has just led an 11-member team in the successful construction and start-up of the $45 million first phase of Basin 2000 that established wastewater recycling for upland habitat restoration and geothermal power generation.

The project director will be the LACOSAN Administrator, Steve Brodnansky, a senior County manager with over 25 years of experience directing capital improvement projects. The project manager will be Mark Dellinger, a senior County project manager with over 15 years of experience in capital improvement projects focused on environmental protection and restoration. These individuals performed the same duties for the successful first phase of Basin 2000 described above. LACOSAN will also retain, through competitive selection, qualified consultants and contractors to execute the technical portions of the work program.

Attachment A

LAKE COUNTY
RESOURCE MANAGEMENT COORDINATING COMMITTEE MEMBERS

Watershed Planning Organization

Lake County
- Sanitation District
- Flood Control District
- Planning Department
- Public Works Department
- Environmental Health Department

Citizen Groups
- Rimlanders
- Audubon Society
- Friends of Cobb
- California Lake Management Society
- Lake County Land Trust

Other Special Districts
- Mendocino Resource Conservation
- Napa Resource Conservation District
- Yolo County Resource Conservation District
- Yolo County Flood Control & Water Conservation District
- Solano County Flood Control & Water Conservation District
- Napa County Flood Control & Water Conservation District

State Agencies
- Department of Fish and Game
- Department of Health Services
- Department of Water Resources
- Department of Conservation
- Department of Parks & Recreation
- Water Quality Control Board
- State Lands Commission

Federal Agencies
- Bureau of Land Management
- Corps of Engineers
- Environmental Protection Agency
- Forest Service
- Natural Resource Conservation Services
- Bureau of Indian Affairs

Educational Institutions
- Mendocino Community College
- Yuba Community College
- Lake County Office of Education

University of California
- Cooperative Extension
- Institute of Ecology, Davis
- U.C. Berkeley

Tribal Councils
- Big Valley Band of Pomo Indians
- Middletown Rancheria
- Lower Lake Rancheria
- Robinson Rancheria
- Scotts Valley Band of Pomo
- Elem Indian Colony of Pomo Indians

City of Lakeport

City of Clearlake

Attachment B

State of California
The Resources Agency
Department of Water Resources

Agreement No. N/A

Exhibit N/A

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

STATE OF CALIFORNIA)
)ss
COUNTY OF LAKE)

Steve Brodnansky (name), being first duly sworn, deposes and says that he or she is Administrator (position title) of Lake County Sanitation District (the bidder),

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: April 15, 1999

By _____
(person signing for bidder)

Subscribed and sworn to before me on April 15, 1999

_____
(Notary Public)

T. M. HARRIS
COMM. # 1206038
NOTARY PUBLIC-CALIFORNIA
LAKE COUNTY
COMM. EXP. JAN. 16, 2003

(Notarial Seal)

DWR 1206 (New : 90)

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